

What is claimed is:

1. A heteromyeloma cell which does not produce any antibody and is capable of producing a trioma cell which does not produce any antibody when fused with a human lymphoid cell; wherein the trioma cell so produced is capable of producing a tetroma which produces a monoclonal antibody having specific binding affinity for an antigen when fused with a second human lymphoid cell, and such second human lymphoid cell produces an antibody having specific binding affinity for the antigen, with the proviso that the heteromyeloma cell is not B6B11. (ATCC accession number HB-12481).
2. A trioma cell which does not produce any antibody obtained by fusing a heteromyeloma cell which does not produce any antibody with a human lymphoid cell.
3. The trioma cell of claim 2, wherein the heteromyeloma cell is the cell designated B6B11 (ATCC accession number HB-12481).
4. The trioma cell of claim 2, wherein the heteromyeloma cell is a B6B11-like cell.
5. The trioma cell of claim 2, wherein the human lymphoid cell is a myeloma cell.
- 30 6. The trioma cell of claim 2, wherein the human lymphoid cell is a splenocyte or a lymph node cell.
7. The trioma cell of claim 2, wherein the trioma cell is the cell designated MFP-2 (ATCC accession number HB-12482).
- 35 8. A tetroma cell capable of producing a monoclonal antibody having specific binding affinity for an

antigen obtained by fusing the trioma cell of claim 2 with a human lymphoid cell capable of producing an antibody having specific binding affinity for the antigen.

9. The tetroma cell of claim 8, wherein the human lymphoid cell is a peripheral blood lymphocyte, a splenocyte, a lymph node cell, a B cell, a T cell, a tonsil gland lymphocyte, a monocyte, a macrophage, an erythroblastoid cell, or a Peyer's patch cell.

10. The tetroma cell of claim 8, wherein the trioma cell is the cell designated MFP-2 (ATCC accession number HB-12482).

11. The tetroma cell of claim 8, wherein the antigen is a tumor-associated antigen, a cell-specific antigen, a tissue-specific antigen, an enzyme, a nucleic acid, an immunoglobulin, a toxin, a viral antigen, a bacterial antigen or a eukaryotic antigen.

12. The tetroma cell of claim 8, wherein the antigen is a mammalian, insect, fungal, E.coli or Klebsiella antigen.

13. A monoclonal antibody produced by the tetroma of claim 8.

14. An isolated nucleic acid encoding the monoclonal antibody of claim 13.

15. A method of generating the trioma cell of claim 2 comprising:  
(a) fusing a heteromyeloma cell which does not produce antibody with a human lymphoid cell thereby forming trioma cells;

- 5           (b) incubating the trioma cells formed in step (a) under conditions permissive to the production of antibody by the trioma cells; and  
         (c) selecting a trioma cell that does not produce any antibody.

10           16. The method of claim 15, further comprising selecting a trioma cell that is capable of growth in serum-free media.

15           17. The method of claim 15, further comprising selecting a trioma cell that is capable of fusing with a peripheral blood lymphocyte or lymph node lymphocyte.

20           18. The method of claim 15, wherein the heteromyeloma cell of step (a) is the cell designated B6B11 (ATCC accession number HB-12481).

25           19. The method of claim 15, wherein the heteromyeloma cell of step (a) is a B6B11-like cell.

30           20. The method of claim 15, wherein the human lymphoid cell is a lymph node lymphocyte or a splenocyte.

35           21. A trioma cell generated by the method of claim 15.

22. A method of generating a tetroma cell capable of producing a monoclonal antibody comprising:

- 30           (a) fusing the trioma cell of claim 2 with a human lymphoid cell thereby forming tetroma cells;  
         (b) incubating the tetroma cells formed in step (a) under conditions permissive for the production of antibody by the tetroma cells; and  
         (c) selecting a tetroma cell capable of producing a monoclonal antibody.

23. The method of claim 22, wherein the trioma cell of step (a) is the cell designated MFP-2 (ATCC accession number HB-12482).

5 24. The method of claim 22, wherein the human lymphoid cell is a peripheral blood lymphocyte, a splenocyte, a lymph node cell, a B cell, a T cell, a tonsil gland lymphocyte, a monocyte, a macrophage, an erythroblastoid cell, or a Peyer's patch cell.

10 25. The method of claim 22, wherein the human lymphoid cell produces antibodies having specific binding affinity for an antigen and wherein the tetroma cell produces a monoclonal antibody having specific binding affinity for the antigen.

15 26. The method of claim 22, wherein the antigen is a tumor-associated antigen, a cell-specific antigen, a tissue-specific antigen, an enzyme, a nucleic acid, an immunoglobulin, a toxin, a viral antigen, a bacterial antigen or a eukaryotic antigen.

20 27. The method of claim 22, wherein the antigen is a mammalian, insect, fungal, E.coli or Klebsiella antigen.

25 28. A tetroma cell generated by the method of claim 22.

30 29. A method of producing a monoclonal antibody comprising:

- (a) fusing a lymphoid cell capable of producing antibody with the trioma cell of claim 2, thereby forming tetroma cells; and
- (b) incubating the tetroma cells formed in step (b) under conditions permissive for the production of antibody by the tetroma cells, thereby producing the monoclonal antibody.

30. A method of producing a monoclonal antibody specific for an antigen associated with a condition in a subject comprising:

- 5           (a) fusing a lymphoid cell capable of producing antibody with the trioma cell of claim 2, thereby forming tetroma cells;
- 10          (b) incubating the tetroma cells formed in step (a) under conditions permissive for the production of antibody by the tetroma cells;
- 15          (c) selecting a tetroma cell producing a monoclonal antibody;
- 20          (d) contacting the monoclonal antibody of step (c) with  
                 (1) a sample from a subject with the condition or  
                 (2) a sample from a subject without the condition under conditions permissive to the formation of a complex between the monoclonal antibody and the sample;
- 25          (e) detecting the complex formed between the monoclonal antibody and the sample;
- 30          (f) determining the amount of complex formed in step (e); and
- (g) comparing the amount of complex determined in step (f) for the sample from the subject with the condition with amount determined in step (f) for the sample from the subject without the condition, a greater amount of complex formation for the sample from the subject with the condition indicating that a monoclonal antibody specific for the antigen specific for the condition is produced.

31. The method of claim 29, step (a) further comprising freezing the lymphoid cell.

32. The method of claim 29, step (b) further comprising incubating the selected tetroma cells under conditions permissive for cell replication.
- 5 33. The method of claim 32, wherein the tetroma replication is effected in vitro or in vivo.
- 10 34. The method of claim 29, wherein the trioma cell is the cell designated MFP-2 (ATCC Accession No. HB-12482).
- 15 35. A monoclonal antibody produced by the method of claim 29.
- 20 36. An isolated nucleic acid encoding the monoclonal antibody of claim 35.
- 25 37. A monoclonal antibody produced by the method of claim 30.
- 30 38. An isolated nucleic acid encoding the monoclonal antibody of claim 37.
- 35 39. A method of identifying an antigen associated with a condition in a sample comprising:  
(a) contacting the monoclonal antibody of claim 35 with the sample under conditions permissive to the formation of a complex between the monoclonal antibody and the sample;  
(b) detecting the complex formed in step (a); and  
(c) isolating the complex detected in step (b), thereby identifying the antigen associated with the condition in the sample.
40. The method of claim 39, further comprising separating the monoclonal antibody from the monoclonal antibody-antigen complex.

41. The method of claim 40, wherein the separation is by size fractionation.
42. The method of claim 41, wherein the size fractionation is effected by polyacrylamide or agarose gel electrophoresis.
43. The method of claim 39 wherein the condition is a tumor.
44. The method of claim 43, wherein the antigen is not previously known.
45. A tumor antigen identified by the method of claim 44.
46. A method for diagnosing a tumor in a sample comprising detecting the presence of the tumor antigen identified by the method of claim 43, the presence of said antigen indicating the presence of tumor in the subject.
47. The method of claim 46, wherein the detecting comprises:
- (a) obtaining an appropriate sample which contains the tumor antigen from the subject;
- (b) contacting the sample with an antibody which is capable of specifically binding to the tumor antigen under conditions permitting the formation of a complex between the antibody and the antigen; and
- (c) detecting the complex formed, thereby detecting the presence of the tumor antigen.
48. A method of diagnosing a condition in a subject comprising:

(a) contacting a sample from the subject with the monoclonal antibody of claim 35 under conditions permissive to the formation of a complex between the monoclonal antibody and the sample; and

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(b) detecting the complex formed between the monoclonal antibody and the sample, positive detection indicating the presence of an antigen specific for the condition in the sample, thereby diagnosing the condition in the subject.

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49. The method of claim 48, wherein the monoclonal antibody is coupled to a detectable marker.

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50. The method of claim 49, wherein the detectable marker is a radiolabeled molecule, a fluorescent molecule, an enzyme, a ligand, a colorimetric marker or a magnetic bead.

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51. A composition comprising the monoclonal antibody of claim 35 and a suitable carrier.

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52. A therapeutic composition comprising an effective amount of the monoclonal antibody of claim 35 and a pharmaceutically acceptable carrier.

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53. The therapeutic composition of claim 52, wherein the condition is cancer and the amount of monoclonal antibody is sufficient to inhibit the growth of or eliminate the cancer.

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54. The therapeutic composition of claim 53, wherein the cancer is breast cancer, thyroid cancer or prostate cancer.

55. The therapeutic composition of claim 52, wherein the condition is an infection and the amount of

monoclonal antibody is sufficient to inhibit the growth of or kill the infectious agent.

5 56. The therapeutic composition of claim 55, wherein the infectious agent is Hanta virus, HTLV I, HTLV II, HIV, herpes virus, influenza virus, Ebola virus, human papilloma virus, Staphlococcus, Streptococcus, Klebsiella, E. coli, anthrax or cryptococcus.

10 57. The therapeutic composition of claim 52, wherein the condition is associate with a toxin and the amount of monoclonal antibody is sufficient to reduce the amount of or destroy the toxin.

15 58. The therapeutic composition of claim 57, wherein the toxin is tetanus, anthrax, botulinum, snake venom or spider venom.

20 59. The therapeutic composition of claim 52, wherein the condition is an autoimmune disease and the amount of monoclonal antibody is sufficient to reduce the amount of or destroy the offending antibody.

25 60. The therapeutic composition of claim 59, wherein the autoimmune disease is lupus, thyroiditis, graft versus host disease, transplantation rejection or rheumatoid arthritis.

30 61. The therapeutic composition of claim 52, wherein the monoclonal antibody is coupled to an effector molecule.

35 62. The therapeutic composition of claim 52, wherein the effector molecule is a cytotoxic agent, drug, enzyme, dye, or radioisotope.

63. The therapeutic composition of claim 52, wherein the monoclonal antibody is coupled to a carrier.
64. The therapeutic composition of claim 63, wherein the carrier is a liposome.
65. A method of treating a condition in a subject comprising administering to the subject an amount of the therapeutic composition of claim 52 effective to bind the antigen associated with the condition, thereby treating the condition in the subject.
66. A method of preventing a condition in a subject comprising administering to the subject an amount of the therapeutic composition of claim 52 effective to bind the antigen associated with the condition, thereby preventing the condition in the subject.
67. The method of claim 66, wherein the subject previously exhibited the condition.
68. The method of claim 65 or 66, wherein the therapeutic composition is administered to a second subject.
69. The method of claim 29, 30, 39, 48, 65 or 66, wherein the condition is associated with a cancer, a tumor, a toxin, an infectious agent, an enzyme dysfunction, a hormone dysfunction, an autoimmune disease, an immune dysfunction, a viral antigen, a bacterial antigen, a eukaryotic antigen, or rejection of a transplanted tissue.
70. The method of claim 69, wherein the condition is septicemia, sepsis, septic shock, viremia, bacteremia or fungemia.

71. The method of claim 69, wherein the cancer is thyroid cancer, breast cancer or prostate cancer.
- 5 72. The method of claim 69, wherein the infectious agent is Hanta virus, HTLV I, HTLV II, HIV, herpes virus, influenza virus, Ebola virus, human papilloma virus, Staphlococcus, Streptococcus, Klebsiella, E. coli, anthrax or cryptococcus.
- 10 73. The method of claim 69, wherein the toxin is tetanus, anthrax, botulinum, snake venom or spider venom.
- 15 74. The method of claim 69, wherein the tumor is benign.
75. The method of claim 69, wherein the enzyme dysfunction is hyperactivity or overproduction of the enzyme.
- 20 76. The method of claim 69, wherein the hormone dysfunction is hyperactivity or overproduction of the hormone.
- 25 77. The method of claim 69, wherein the immune dysfunction is CD3 or CD4 mediated.
- 30 78. The method of claim 69, wherein the autoimmune disease is lupus, thyroiditis, graft versus host disease, transplantation rejection or rheumatoid arthritis.

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